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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,621	11/28/2005	Hubert Moriceau	280759US0PCT	6732
22850	7590	05/29/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER ISAAC, STANETTA D				
ART UNIT		PAPER NUMBER		
2812				
NOTIFICATION DATE		DELIVERY MODE		
05/29/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/558,621

**Applicant(s)**

MORICEAU ET AL.

**Examiner**

STANETTA D. ISAAC

**Art Unit**

2812

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-15 and 17-30 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/28/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### DETAILED ACTION

This Office Action is in response to the amendment filed on 2/11/09. Currently, claims 11-30 are pending.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11-15, 17-20 and 23-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Stanley et al (US Patent 6,420,243, hereinafter referred to as "Stanley").

Stanley discloses the semiconductor method as claimed. See figures 1-5, and corresponding text, where Abe teaches, pertaining to claim 11, a process for obtaining a thin layer made of a first material on a substrate made of a second material called a final substrate, the process comprising, in the order as hereinafter set forth: bonding a thick layer **2** of a first material by one of its main faces on the final substrate **1** at an interface followed by implanting gaseous species in the thick layer of the first material to create a weakened zone **4**, **4'** followed by bonding said thick layer of said first material by one of its main faces on the final substrate at an interface thereby delimiting said thin layer **7** between the interface and the weakened zone (figure 2, steps 11-41; col. 2, lines 60-67; col. 3, lines 1-13); depositing a layer of a third material **3** to form a self-supporting layer on a free face of the thick layer made of the first material (figure 2,

steps 21 and 41; col. 2, lines 61-64; col. 3, lines 8-13); and fracturing **5** the structure comprising the final substrate, the thick layer of the first material and the layer of the third material, at the weakened zone to supply the substrate supporting said thin layer (figure 2, step 51; col. 3, lines 14-18).

Stanley teaches, pertaining to claim 12, wherein implanting gaseous species further comprises implanting one or more identical or different gaseous species (figure 2, step 31; col. 2, lines 65-67).

Stanley teaches, pertaining to claim 13, wherein said gaseous species is selected from the group consisting of hydrogen and helium (figure 2, steps 31; col. 2, lines 65-67).

Stanley teaches pertaining to claim 14, a process for obtaining a thin layer made of a first material on a substrate made of a second material called a final substrate, the process comprising, in the order as hereinafter set forth: bonding a thick layer **2** of a first material by one of its main faces on the final substrate **1** at an interface followed by implanting gaseous species in the thick layer of the first material to create a weakened zone **4**, **4'** followed by bonding said thick layer of said first material by one of its main faces on the final substrate at an interface thereby delimiting said thin layer between the interface and the weakened zone figure 2, steps 11-41; col. 2, lines 60-67; col. 3, lines 1-13); depositing a layer of a third material **3** to form a self-supporting layer on a free face of the thick layer made of the first material (figure 2, steps 21 and 41; col. 2, lines 61-64; col. 3, lines 8-13); and fracturing the structure comprising the final substrate, the thick layer of the first material and the layer of the third material, at the weakened zone

to supply the substrate supporting said thin layer (figure 2, steps 51; col. 3, lines 14-18), wherein the thick layer of the first material is a layer delimited in an initial substrate, and further comprising fracturing between the thick layer of the first material and a remainder of the initial substrate, which is performed after bonding the thick layer of the first material onto the first final substrate (figure 2, steps 51; col. 3, lines 14-18).

Stanley teaches, pertaining to claim 15, wherein implanting gaseous species in the initial substrate further comprises implanting hydrogen ions (figure 2, step 31; col. 2, lines 65-67).

Stanley teaches, pertaining to claim 17, wherein implanting gaseous species in the thick layer of the first material is performed before bonding the thick layer of the first material on the final substrate (figure 2, step 31; col. 2, lines 65-67).

Stanley teaches, pertaining to claim 18, wherein fracturing is performed by a heat treatment, wherein implanting gaseous species is performed under conditions so that the fracturing between the thick layer of the first material and a remainder of the initial substrate is obtained at a temperature less than the fracture temperature of said structure (figure 2, step 51; col. 2, lines 49-54).

Stanley teaches, pertaining to claim 19, wherein the thick layer of the first material is bonded onto the final substrate by molecular bonding (col. 1, lines 45-51).

Stanley teaches, pertaining to claim 20, wherein a part of the self-supporting layer is deposited, and the gaseous species are implanted in the thick layer of the first material after the partial deposit (figure 2, steps 21 and 31; col. 2, lines 61-67).

Stanley teaches, pertaining to claim 23, comprising, in the order as hereinafter set forth: bonding a thick layer **2** of a first material by one of its main faces on the final substrate **1** at an interface followed by implanting gaseous species in the thick layer of the first material to create a weakened zone **4, 4'** delimiting said thin layer between the interface and the weakened zone (figure 2, step 51, col. 3, lines 9-18); depositing a layer of a third material **3** to form a self-supporting layer on a free face of the thick layer made of the first material (figure 2, steps 21 and 41; col. 2, lines 61-64; col. 3, lines 8-13); and fracturing the structure comprising the final substrate, the thick layer of the first material and the layer of the third material at the weakened zone to supply the substrate supporting said thin layer (figure 2, step 51; col. 3, lines 14-18).

Stanley teaches, pertaining to claim 24, wherein implanting gaseous species are further comprises implanting one or more identical or different gaseous species (figure 2, step 31; col. 2, lines 65-67).

Stanley teaches, pertaining to claim 25, wherein said gaseous species are selected from group consisting of hydrogen and helium (figure 2, step 31; col. 2, lines 65-67).

Stanley teaches, pertaining to claim 26, comprising, in the order as hereinafter set forth: implanting gaseous species in a thick layer of a first material to create a weakened zone **4, 4'** followed by bonding said thick layer of said first material by one of its main faces on the final substrate at an interface thereby delimiting said thin layer between the interface and the weakened zone (figure 2, steps 11-41; col. 2, lines 60-67; col. 3, lines 1-13); depositing a layer of a third material **3** to form a self-supporting layer

on a free face of the thick layer made of the first material (figure 2, steps 21 and 41; col. 2, lines 61-64; col. 3, lines 8-13); and fracturing the structure comprising the final' substrate, the thick layer of the first material and the layer of the third material at the weakened zone to supply the substrate supporting said thin layer (figure 2, step 51; col. 3, lines 14-18).

Stanley teaches, pertaining to claim 27, wherein implanting gaseous species further comprises implanting one or more identical or different gaseous species (figure 2, step 31; col. 2, lines 65-67).

Stanley teaches, pertaining to claim 28, wherein said gaseous species area selected from the group consisting of hydrogen and helium (figure 2, step 31; col. 2, lines 65-67).

Stanley teaches, pertaining to claim 29, consisting of, in the order as hereinafter set forth: bonding a thick layer **2** of a first material by one of its main faces on the final substrate **1** at an interface followed by implanting gaseous species in the thick layer of the first material to create a weakened zone delimiting **4**, **4'** said thin layer between the interface and the weakened zone (figure 2, steps 11-41; col. 2, lines 60-67; col. 3, lines 1-13); depositing a layer of the third material **3** to form a self-supporting layer on a free face of the thick layer made of the first material (figure 2, steps 21 and 41; col. 2, lines 61-64; col. 3, lines 8-13); and fracturing **5** the structure comprising the final substrate, the thick layer of the first material and the layer of the third material at the weakened zone to supply the substrate said thin layer (figure 2, step 51; col. 3, lines 14-18).

Stanley teaches, pertaining to claim 30, consisting of, in the order as hereinafter set forth: implanting gaseous species in a thick layer of a first material to create a weakened zone **4**, **4'** followed by bonding said thick layer of said first material by one of its main faces on the final substrate **1** at an interface thereby delimiting said thin layer between the interface and the weakened zone (figure 2, step 51, col. 3, lines 9-18); depositing a layer of a third material **3** to form a self-supporting layer on a free face of the thick layer made of the first material (figure 2, steps 21 and 41; col. 2, lines 61-64; col. 3, lines 8-13); and fracturing **5** the structure comprising the final substrate, the thick layer of the first material and the layer of the third material at the weakened zone to supply the substrate supporting said thin layer (figure 2, step 51; col. 3, lines 14-18).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.



5. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stanley et al (US Patent 6,420,243, hereinafter referred to as "Stanley").

Stanley discloses the semiconductor method substantially as claimed. See the rejection above.

However, Stanley fails to show, pertaining to claim 21, wherein said thin layer has a thickness less than 0.1  $\mu\text{m}$ . In addition, Stanley fails to show, pertaining to claim 22, wherein said thin layer has a thickness less than 0.1  $\mu\text{m}$ .

Stanley teaches forming a thin layer using conventional semiconductor processing for the purpose of reducing surface roughness (figures 1 and 2; col. 1, lines 36-67; col. 2, lines 1-6).

Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the following steps of: wherein said thin layer has a thickness less than 0.1  $\mu\text{m}$ ; wherein said thin layer has a thickness less than 0.1  $\mu\text{m}$ , in the method of Stanley, pertaining to claims 21 and 22, according to the teachings of Stanley, with the motivation that given the teachings of the references, it would have been obvious to determine the optimum thickness, temperature as well as condition of delivery of the layers involved, for the purpose of reducing surface roughness. (*See In re Aller, Lancey and Hall* (10 USPQ 233-237))

***Allowable Subject Matter***

6. Claim 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

7. Applicant's arguments, see Remarks, filed 2/11/09, with respect to the rejection(s) of claim(s) 11-30 under 35 U.S.C.102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Stanley et al (US 6,420,243).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STANETTA D. ISAAC whose telephone number is (571)272-1671. The examiner can normally be reached on Monday-Friday 9:30am - 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on 571-272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stanetta Isaac  
Patent Examiner  
May 20, 2009

/Charles D. Garber/  
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